Primary Care Cardiovascular Society

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CLINICAL PHARMACY ASSOCIATION

Anticoagulation for non-valvular atrial fibrillation (NVAF) following NHSE DOAC commissioning recommendations

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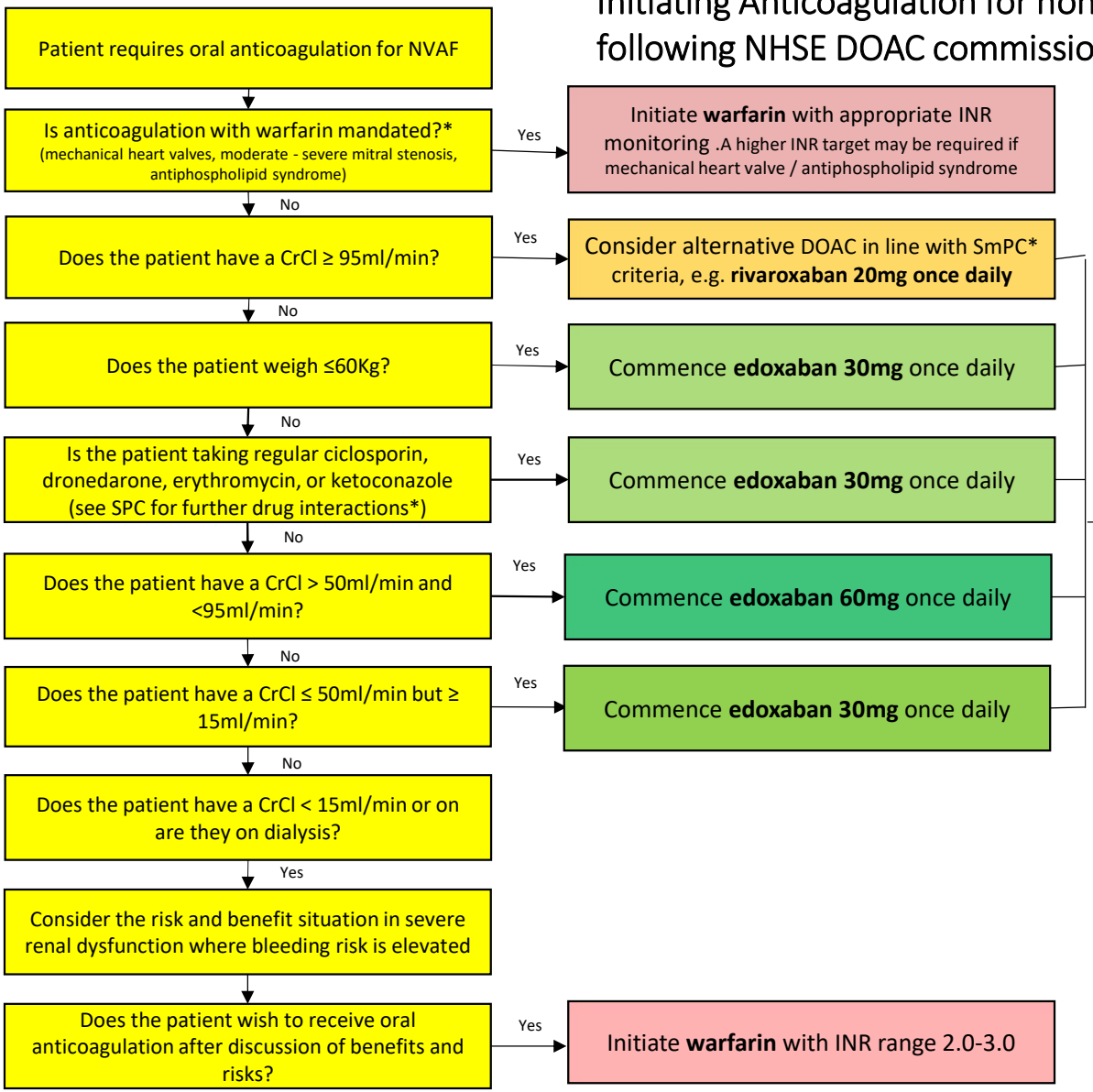
Initiating Anticoagulation for non-valvular atrial fibrillation (NVAF) following NHSE DOAC commissioning recommendations



Anticoagulation choice

- DOACs should be used first line for NVAF. Exclusions include:
  - Mechanical heart valves (or within 3 months of a bioprosthertic (tissue) valve)
  - Moderate to severe mitral valve stenosis
  - Antiphospholipid syndrome (APS)
  - Renal failure with creatinine clearance < 15mls/min
  - Patient requiring a higher INR range (>2-3)
  - Concomitant use of drugs which are contraindicated with DOACs– see SmPCs

*Edoxaban should be used in patients with NVA and high CrCl (≥ 95ml/min) only after a careful evaluation of the individual thromboembolic and bleeding risk.

DOAC monitoring

DOACs are not with out a need for surveillance as their dosing is determined by renal function
Recommended renal monitoring frequencies (or as advised by local guidelines):

- Creatinine Clearance >60mls/min Routine surveillance every 12 months
- Creatinine Clearance 30-60mls/min. Routine surveillance every 6 months
- Patients over the age of 75 years and / or frail. Routine surveillance every 6 months
- Creatinine Clearance 15-30ml/min. Routine surveillance every 3 months
- More frequent monitoring is recommended if there has been a significant recent decline in renal function – see local guidance

Creatinine Clearance ≤15mls/min

When creatinine clearance has fallen to <15mls/min, DOAC should be discontinued. Warfarin can be used in those with poor renal function following appropriate discussion regarding stroke and bleeding risk. Alternatively a left atrial appendage occlusion (LAAO) device could be considered in line with NICE guidance.

LAAO

If a patient has significant risk of AF related cardioembolic stroke but cannot receive an oral anticoagulant either due to renal function or bleeding consider referral to cardiology for consideration of LAAO device insertion.
More information can be found about this at the AF Association Left Atrial Appendage Occlusion

* https://www.medicines.org.uk/emc/product/6905/smpc

Adapted with permission from guidance produced by Matt Fay, Affinity Healthcare
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Additional Information on switching from warfarin to a DOAC

It is for the prescribing clinician to determine which DOAC(s) are clinically appropriate for an individual patient based upon the relevant NICE technology appraisal guidance.

When switching to a DOAC, care should be taken to follow the recommendations in the relevant SPC:

- **Apixaban (Eliquis®) https://www.medicines.org.uk/emc/product/2878/smpc**
- **Dabigatran (Pradaxa®) https://www.medicines.org.uk/emc/product/4703/smpc**
- **Edoxaban (Lixiana®) https://www.medicines.org.uk/emc/product/6905/smpc**
- **Rivaroxaban (Xarelto®) https://www.medicines.org.uk/emc/product/2793/smpc**

A switch from warfarin to a DOAC should not be considered for patients:

- With a prosthetic mechanical valve
- With moderate to severe mitral stenosis
- With antiphospholipid antibody syndrome (ALS) (except where advised by an anticoagulant specialist)
- Who are pregnant breast-feeding or planning a pregnancy
- Requiring a higher INR than the standard INR range of 2.0 – 3.0
- With severe renal impairment - Creatinine Clearance (CrCl) < 15ml/min
- With venous thrombosis at unusual sites (e.g. portal vein thrombosis)

Seek advice for patients with:

- *Active malignancy/ chemotherapy*
- *Prescribed interacting drugs – check SmPCs for full list*
- *Some HIV antiretrovirals and hepatitis antivirals - check with HIV drug interactions website at https://www.hiv-druginteractions.org/*
- *Some antiepileptics- phenytoin, carbamazepine, phenobarbitone or rifampicin are likely to reduce DOAC levels so should be discussed with an anticoagulation specialist*
- *On triple therapy (dual antiplatelet therapy plus warfarin)*

Suggested process for safe switching from warfarin to a DOAC:

1. Check recent U&Es, LFTs and FBC (ideally within the last 3 months) and calculate creatinine clearance (CrCl) (https://www.mdcalc.com/creatinine-clearance-cockcroft-gault-equation) using actual body weight from last 12 months (unless recent weight loss/gain) (use adjusted bodyweight if patients > 120kg / BMI > 40)
2. Check INR
3. Discuss options with your patient and/or carers (as appropriate) and, with consent, prescribe DOAC at appropriate dose – edoxaban preferred first-line: see overleaf.
4. **Remove warfarin from the repeat prescription after initiating DOAC**
5. SmPCs for individual DOACs recommend different INR thresholds for starting DOACs after stopping warfarin. The EHRA gives pragmatic guidance and recommends that the INR should be < 2.5 when the DOAC is started.
   - **If INR < 2: Commence DOAC that day**
   - **If INR between 2 and 2.5: Commence DOAC the next day ideally (or the same day)**
   - **If INR between 2.5 and 3: Withhold warfarin for 24-72 hours and then initiate DOAC**

   https://academic.oup.com/eurheartj/article/39/16/1330/4942493?guestAccessKey=e7e62356-8aa6-472a-aeb1-eb5b58315d49
6. Provide written instructions and involve family members / carers where possible to minimise the risk of patients taking both warfarin and the DOAC concurrently. Particular care should be taken where patients are using medication compliance aids to minimise the risk of incorrect dosing
7. Provide an up-to-date Anticoagulant Alert and DOAC counselling (see checklist)
8. Where the switch to a DOAC is undertaken outside the GP practice, provide accurate information relating to indication, baseline tests and monitoring requirements to allow primary care to safely take over prescribing responsibility.
9. Inform community nursing teams if they have been monitoring INR or administering warfarin
10. Ensure appropriate on-going monitoring is in place using the clinical system recall function – frequency will depend on renal function, age and frailty

Additional Information on switching from another DOAC to edoxaban

It is for the prescribing clinician to determine which DOAC(s) are clinically appropriate for an individual patient based upon the relevant NICE technology appraisal guidance.

When switching therapy, care should be taken to follow the recommendations in the relevant SmPC:

- **Apixaban (Eliquis®):** https://www.medicines.org.uk/emc/product/2878/smpc
- **Dabigatran (Pradaxa®)** https://www.medicines.org.uk/emc/product/4703/smpc
- **Edoxaban (Lixiana®) -** https://www.medicines.org.uk/emc/product/6905/smpc
- **Rivaroxaban (Xarelto®)** - https://www.medicines.org.uk/emc/product/2793/smpc

Patients in whom a switch to edoxaban may be *less suitable* (see also contraindications and cautions in SmPC: https://www.medicines.org.uk/emc/product/6905/smpc

- Other indications for anticoagulation, such as venous thromboembolism (DVT or PE) within the last 6 months
- Unlicensed indications eg left ventricular thrombus, portal vein thrombosis, arterial thrombus, antiphospholipid syndrome (APS), short term use, such as pre/post cardioversion
- Recent CV event (acute coronary syndrome or stent insertion) prescribed single or dual antiplatelet therapy with a DOAC
- Where a specialist has indicated a clinical reason for using a specific DOAC
- Recent major bleed* or new major bleeding risk)* or interacting drugs which increasing bleeding risk (for example; ciclosporin, dronedarone, erythromycin, or ketoconazole)
- History of severe menorrhagia*
- Active malignancy or chemotherapy
- Extremes of bodyweight: > 120kg (or BMI > 40) or < 50kg
- Hepatic disease associated with coagulopathy and significant bleeding risk*
- Haemoglobin (Hb) <10g/dL or Platelets <100 ($x10^9$/L) - investigate and address underlying causes*
- Cognitive dysfunction – if there are concerns regarding patient understanding
- Recent falls / increasing frailty*

**review whether on-going anticoagulation therapy is safe / appropriate*

Suggested process for each patient:

1. Check recent U&Es, LFTs and FBC (ideally within the last 3 months) and calculate creatinine clearance (CrCl) (https://www.mdcalc.com/creatinine-clearance-cockcroft-gault-equation) using actual body weight from last 12 months (unless recent weight loss/gain) (use adjusted bodyweight if patients > 120kg / BMI > 40)
2. Discuss options with your patient and/or carers (as appropriate) and, with consent, prescribe edoxaban at appropriate dose - see overleaf.
3. **Remove current DOAC from repeat prescription after adding edoxaban.**
4. Advise patient to continue with existing DOAC whilst obtaining supplies - ideally the patient should switch to edoxaban **after using up** their existing supplies of the other DOAC.
5. Advise patient when to stop the alternative DOAC and when to start edoxaban:
    - **For patients on rivaroxaban:** continue as usual on the day before the switch; start edoxaban once daily when the next dose is due on the day of the switch. Continue once daily thereafter.
    - **For patients on apixaban or dabigatran:** continue with normal morning and evening dosing on the day before the switch; start edoxaban once daily when the next dose is due on the day of the switch. Continue once daily thereafter.

    *****Ensure the patient understands that the edoxaban should only be taken ONCE daily*****
6. Provide written instructions and involve family members / carers where possible . Particular care should be taken where patients are using medication compliance aids – ensure the community pharmacy is informed
7. Provide an up-to-date Anticoagulant Alert card and DOAC counselling (see checklist)
8. Where the DOAC switch is undertaken outside the GP practice, provide accurate information to allow primary care to safely take over prescribing responsibility.
9. Inform community pharmacy of the change and encourage follow up via new medicines service or discharge medicines service
10. Ensure appropriate on-going monitoring is in place using the clinical system recall function – frequency will depend on renal function, age and frailty

DOAC Prescribing for Non-Valvular AF (NVAF)

DOAC	Edoxaban	Rivaroxaban	Apixaban	Dabigatran
Dosing in Non-valvular AF (lifelong unless risk:benefit of anticoagulation therapy changes)	Prescribe Edoxaban 60mg once daily Reduce dose to 30mg once daily if: Body weight <61kg, or CrCl< 50ml/min, or co-prescribed with ciclosporin, dronedarone, erythromycin or ketoconazole.	Prescribe Rivaroxaban 20mg once daily Reduce dose to 15mg once daily if CrCl< 50mL/min in NVAF patients only.	Prescribe Apixaban 5mg twice daily Reduce dose to 2.5mg twice daily if at least two of the following characteristics: age ≥ 80 years, body weight ≤ 60 kg, or serum creatinine ≥ 133 micromol/l or if exclusive criteria of CrCl 15 - 29 ml/min.	Prescribe Dabigatran 150mg twice daily if aged <75 years, CrCl> 50mL/min, low risk of bleeding (weight <50kg with close clinical surveillance) Reduce dose to 110mg twice daily if aged > 80 years or prescribed verapamil. Consider 110mg twice daily based on individual assessment of thrombotic risk and the risk of bleeding in patients aged between 75 and 80 years or with CrCl <50mL/min or with increased risk of bleeding (including gastritis, oesophagitis, gastro-oesophageal reflux).
Contraindicated / Not recommended	CrCl <15ml/min	CrCl <15ml/min	CrCl <15ml/min	CrCl <30ml/min
Cautions **See also individual SPCSs**	CrCl >95ml/min	CrCl <30ml/min. Take with or after food (15mg and 20mg doses).		Do not use in a standard medication compliance aids (MCA)
Interactions **Check BNF:** www.bnf.org **SPC:** www.medicines.org.uk	Rifampicin, phenytoin, carbamazepine, phenobarbital or St. John's Wort – use with caution Ciclosporin, dronedarone, erythromycin, ketoconazole – reduce dose as above. (See BNF and SPC for edoxaban for further information)	Ketoconazole, itraconazole, voriconazole, posaconazole, ritonavir, dronedarone – not recommended (See SPC for full details) Rifampicin, phenytoin, carbamazepine, phenobarbital, St. John's Wort – Should be avoided.	Ketoconazole, itraconazole, voriconazole, posaconazole, ritonavir - not recommended (See SPC for full details) Rifampicin, phenytoin, carbamazepine, phenobarbital, St. John's Wort – use with caution. Do not use apixaban with patients on strong enzyme inducers for acute VTE treatment	Ketoconazole, ciclosporin, itraconazole, tacrolimus, dronedarone - contraindicated (See SPC for full details) Rifampicin, St John's Wort, carbamazepine, phenytoin –should be avoided. Amiodarone, quinidine, ticagrelor, posaconazole – use with caution. Verapamil (use reduced dose). Antidepressants: SSRIs and SNRIs- increased bleeding risk

Counselling checklist for DOACs

Counselling points	Sign
Explanation of an anticoagulant (increases clotting time and reduces risk of clot formation) and explanation of indication for therapy	
Differences between DOAC and warfarin (if applicable for patients converting from warfarin to DOAC therapy or offering choice of anticoagulation agent) • No routine INR monitoring • Fixed dosing • No dietary restrictions and alcohol intake permitted (within national guidelines) • Fewer drug interactions	
Name of drug: generic & brand name	
Explanation of dose: strength & frequency	
Duration of therapy: indefinitely for AF	
To take with food (dabigatran and rivaroxaban). Not required for apixaban or edoxaban	
Missed doses: • Edoxaban and rivaroxaban can be taken within 12 hours of missed dose, otherwise omit the missed dose • Apixaban and dabigatran can be taken within 6 hours of missed dose, otherwise omit the missed dose	
Extra doses taken: obtain advice immediately from pharmacist/GP/NHS Direct (111)	
Importance of adherence: short half-life and associated risk of stroke and/or thrombosis if non-compliant	

Counselling points	Sign
Common and serious side-effects and who/when to refer: symptoms of bleeding/unexplained bruising. Avoidance of contact sports. • Single/self-terminating bleeding episode – routine appointment with GP/pharmacist • Prolonged/recurrent/severe bleeding/head injury – A&E Major bleeds managed/reversed by supportive measures, Prothrombin Complex Concentrate (PCC), and availability of antidote	
• Drug interactions and concomitant medication: avoid NSAID's. Always check with a pharmacist regarding OTC/herbal/complimentary medicines	
Inform all healthcare professionals of DOAC therapy: GP, nurse, dentist, pharmacist i.e. prior to surgery	
Pregnancy and breastfeeding: potential risk to foetus – obtain medical advice as soon as possible if pregnant/considering pregnancy. Avoid in breastfeeding	
Storage: dabigatran must be kept in original packaging – moisture sensitive. All other DOAC are suitable for standard medication compliance aids/ dosette boxes if required	
Follow-up appointments, blood tests, and repeat prescriptions: where and when	
• Issue relevant patient information AF booklet/leaflet and anticoagulant patient alert card	
Give patient opportunity to ask questions and encourage follow up with community pharmacist (NMS – New Medicine Service)	